MEMORANDUM

TO: All DRACOM Students in CST8152 – Section 10
FROM: Prudent teacher (Sv. Ranev)
DATE: 3 November 2015
SUBJECT: How to regularize, tokenize and scan successfully the Midterm Test

USELESS ADVICE: *AGE QUOD AGIS*

Date: 13 November 2015 **Time: 09:00-10:00** **Room: T130**

The Mid-term test consists of 30 questions. They are broken down into two groups - Syntactically Easy and Lexically Hard. The questions will be a potpourri of multiple choice, true-false, short answer, long answer, and fill-in-the-blanks. At the end of the test there will be two bonus questions. You may replace any one of the preceding compulsory questions with a bonus question. The test will count for 30% of your final marks. All questions are equally weighted.

A prudent DRACOM (**D**iligently **R**eady and **A**ware of **COM**pilers) student will read carefully the following parts of the textbook:

Old Dragon textbook: Chapters 1, part of 2, 3, 4, and 11; Pages: 1 - 23, 25 – 32, 54 - 60, 83 - 111, 113 -117, 121 -125, 127 - 129, 159 - 161, 165 -167, 172 -173, 723 - 732, 735-737

Current Dragon textbook: Chapters 1, part of 2, 3, 4, and 11; Pages: 1 - 36, 39 – 50, 61 - 63, 69,76-80, 109 -124, 128 -136, 147 - 172, 185, 191 - 194, 197 -199, 203 -205, 209 – 210.

A prudent DRACOM student will establish very close relations with:

the purpose and the function of the compilers; types of compilers and compiler-like programs; the components of the compiler; lexical, syntax, and semantic analysis; parse trees and syntax trees; the components and the phases of a compiler; the front end and the back end of a compiler; tombstone diagrams; compiler construction tools; language definition; context-free grammars; regular expressions; operations on regular expressions; finite automata; NFA and DFA; transition diagrams and transition tables; error-recovery strategies; implementation details; compiler design issues; examples.

A prudent DRACOM student will have serviceable knowledge of how to

read BNF grammars and construct simple parse trees; read and write regular expressions and definitions; create transition diagrams and transition tables;

A prudent DRACOM student will be familiar with all the figures in the specified pages.

A prudent DRACOM student will peruse their lecture notes.

IMAGINE ALL THE STUDENTS ...

EXAMPLES OF THE TEST QUESTIONS:

1. What is the regex of your teacher?
   a. Svillen
   b. SiR
   c. Ranev
   d. [~@#^&]* | ε | [&%$#~]+ | [^~^]?
   e. a | b | c | d

The correct answer is e.

2. Which of following is not a property of a parse tree?
   a. The root is labeled by the start symbol.
   b. Each leaf is labeled by a token or by the empty string.
   c. Each interior node is labeled by a nonterminal.
   d. Each leaf represents one production

The correct answer is d [page 45] [old - 29].

3. The lexical analyzer is part of the compiler back end.
   a. True b. False

The correct answer is b [p 4,11] [20].

4. A _____ tree is a compressed presentation of the parse tree.

The correct answer is *syntax* [p41,69][7].

5. Write at least five strings that match the following regular expression:
   a | b*c+

The correct answers are
   a bc bbcc bbbc c [p122] [95]

6. Given the set of strings
   addb ab adcb acb acdb addccdddb

   write a regular expression that describes this set.

The correct answer is:
   ad*c*d*b [p122] [95]

Good Learning, and do not forget that:
"Compilers always compile well; unfortunately people write compilers." Anonymous programmer
and
"All I am saying is "Lexicon is not a Scary Creature so Give Compilers a Chance."